

## Using Underwater Video to Estimate Salmon and Steelhead Abundance

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### Abstract

Enumerating salmon and steelhead abundance is critical for the purposes of managing run strength, stock composition, and directed fisheries. Accomplishing this can be difficult especially in large river systems comprised of multiple species with overlapping run times. Several techniques such as sonar, mark-recapture experiments, or traditional weirs could be used to estimate the abundance of salmon and steelhead, but these techniques are often expensive, time consuming, can adversely impact returning fish runs, and can have a significant amount of error associated with the estimate. A successful technique recently used to estimate salmon and steelhead abundance and run timing is weirs equipped with underwater video systems. Underwater video monitoring offers several advantages such as unobstructed fish passage, accurate counts and species identification, fish enumeration during high and turbid water conditions, and long-term cost savings. Motion-detection hardware and software records images only when fish are passing through the weir, which requires considerably less staff time to review than actual live counts. The ability to replay, freeze-frame and zoom in during file review has also improved the accuracy of counts and species identification compared to traditional weirs. This technique is illustrated using data collected from salmon and steelhead spawning migrations on the Kenai Peninsula in Southcentral Alaska.

\* I am only interested in an oral presentation.